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SCD/ECF Department Overview

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ECF Department

The ECF Department is responsible for managing Linux systems for the experiments running at Fermilab including CMS, a number of Intensity Frontier experiments, experimental astrophysics, and the Tevatron experiments CDF and DZero.

Our system administrators keep several thousand systems running and manage almost 15 PB of disk based storage. We work with experiments and other groups to design computing architecture, both for offline data analysis and for online data taking. Additionally, we package and maintain Scientific Linux.

ECF/Scientific Linux and Architecture Management group

- Packages, updates, supports Scientific Linux
- Works with experiments to design and maintain online computing—typically at detector sites
- Maintains workstations in the ROC-West, ROC-East, and other experiment control rooms
- Supports Linux workstations used by scientists in a number of groups at Fermilab

ECF/Scientific Server Infrastructure group

- CMS servers and storage
- GPCF, central virtualized infrastructure for:
  - Interactive computers for over 30 experiments
  - Monitoring and other service applications
- CMS and GP Grid worker and admin nodes
- Public dCache pool and admin nodes
- Hosts for many scientific databases
- CVMFS repository servers
- Jenkins continuous integration master and build nodes

ECF/Grid and Cloud Operations group

- HTCondor batch computing
  - GPGrid
  - CMS Tier-1
  - LPC interactive computing nodes as well as the LPC cluster
- CMS Global Pool HA services
  - Backup Collector
  - Backup Frontend
  - Factory
- Coming soon: Fifebatch
  - Jobsub Servers
  - Fife glideinWMS infrastructure

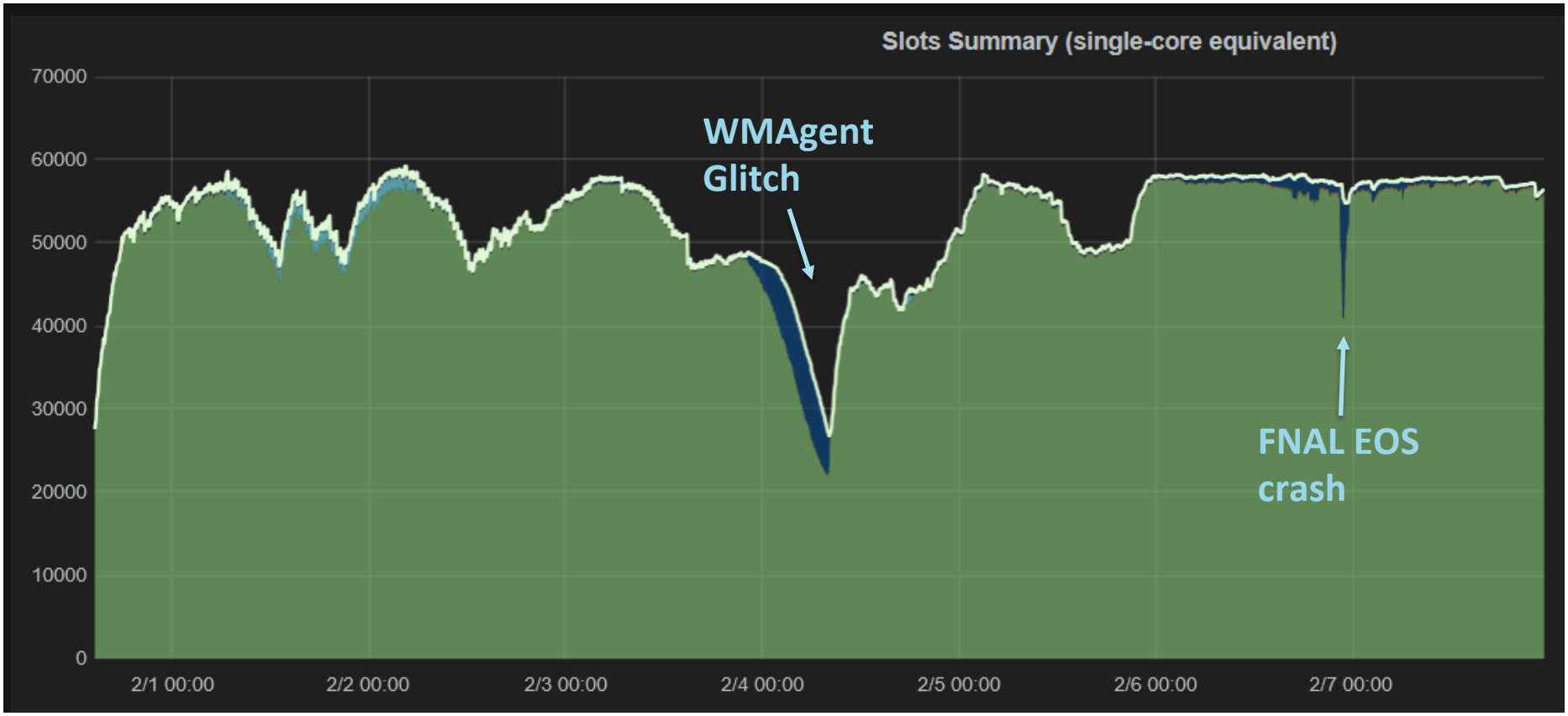
ECF/Grid and Cloud Operations group

- Authorization services
  - GUMS
  - VOMS
  - Rolling out MyProxy (Part of the DCAFI project to replace KCA)
- Accounting Services
  - Multiple Gratia collectors and frontends
- Squid/Frontier Services
- CVMFS Stratum-1 servers
- FermiCloud
- Coming soon: HEPCloud

What is HEPCloud?

- HEPCloud is envisioned as a portal to an ecosystem of diverse computing resources, commercial or academic
- Provides “complete solutions” to users, with agreed upon levels of service
- Manages allocations of users to target compute engines
- Provides a unified interface for job submission to multiple resources, including:
  - Local dedicated High Throughput Computing (HTC) clusters
  - Shared opportunistic grid resources, particularly the Open Science Grid (OSG)
  - Cloud resources, including Academic partners and Commercial Clouds
  - High Performance Computing (HPC) centers

HEPCloud Peak Resources (CMS Demonstrator)



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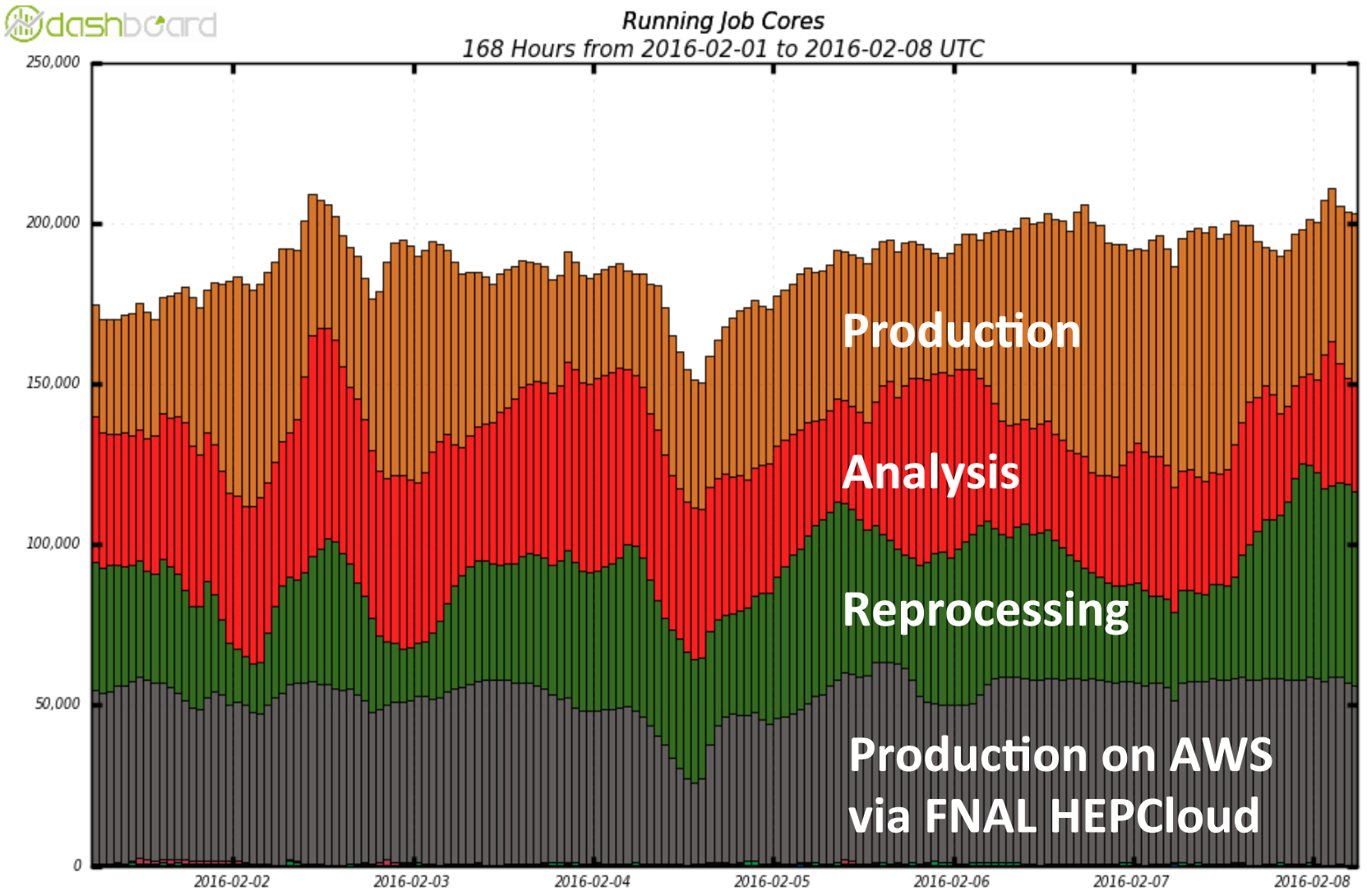
HEPCloud/AWS: 25% of CMS global capacity



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